

SECTION

5

Quality of care in the Medicare program

Chart 5-1. In-hospital and 30-day postdischarge mortality rates improved from 2010 to 2013

| Condition or procedure | Risk-adjusted rate per 100 eligible discharges, 2010 | Risk-adjusted rate per 100 eligible discharges, 2013 | Directional change in rate, 2010–2013 |
|---------------------------------------|--|--|---|
| In-hospital mortality | | | |
| Acute myocardial infarction | 7.33 | 5.73 | Better |
| Congestive heart failure | 3.54 | 2.89 | Better |
| Stroke | 10.00 | 8.06 | Better |
| Hip fracture | 3.09 | 2.50 | Better |
| Pneumonia | 3.73 | 2.91 | Better |
| 30-day postdischarge mortality | | | |
| Acute myocardial infarction | 11.38 | 11.54 | No difference |
| Congestive heart failure | 9.56 | 9.48 | No difference |
| Stroke | 23.08 | 21.77 | Better |
| Hip fracture | 8.24 | 8.18 | No difference |
| Pneumonia | 9.10 | 8.31 | Better |

Note: Rates are calculated based on the discharges eligible to be counted in each measure. Rates do not include deaths in non–inpatient prospective payment system hospitals or Medicare Advantage plans. “Better” indicates that the risk-adjusted rate decreased by a statistically significant amount from 2010 to 2013 using a $p \leq 0.01$ criterion. “No difference” indicates that the change in the rate was not statistically significant from 2010 to 2013 using a $p \leq 0.01$ criterion.

Source: MedPAC analysis of CMS Medicare Provider Analysis and Review data using Agency for Healthcare Research and Quality (AHRQ) Inpatient Quality Indicators version 4.1b (with modifications for 30-day mortality rate calculations).

- Our most recent analysis of mortality rates of Medicare beneficiaries treated for the five medical conditions listed in this chart shows generally positive trends. We used five of the Inpatient Quality Indicators developed by AHRQ to measure risk-adjusted mortality rates during a hospital stay for treatment of the referenced medical condition (the in-hospital rate) as well as mortality in the 30-day period following Medicare patients’ discharges from the hospital. The rates are calculated using software developed by AHRQ applied to Medicare inpatient hospital discharge data. We examine the magnitude and direction of changes in the rates over time to assess whether inpatient care quality for Medicare beneficiaries is improving, worsening, or not changing.
- Risk-adjusted rates of in-hospital mortality for all five conditions improved (i.e., the rates declined) by a statistically significant amount from 2010 to 2013.
- Over the same period (2010 to 2013), risk-adjusted rates of mortality within 30 days after discharge also improved (declined) for hospital stays related to treatment of stroke and pneumonia and remained unchanged (showed no statistically significant improvement or decline) for patients treated for acute myocardial infarction, congestive heart failure, and hip fracture.

Chart 5-2. Most hospital inpatient patient safety indicators were stable from 2010 to 2013

| Patient safety indicator | Risk-adjusted rate per 100 eligible discharges, 2010 | Risk-adjusted rate per 100 eligible discharges, 2013 | Directional change in rate, 2010–2013 |
|--|--|--|---------------------------------------|
| Death among surgical inpatients with treatable serious complications | 11.45 | 11.72 | No difference |
| Iatrogenic pneumothorax | 0.02 | 0.03 | No difference |
| Postoperative respiratory failure | 0.88 | 0.83 | No difference |
| Postoperative PE or DVT | 0.41 | 0.35 | Better |
| Postoperative wound dehiscence | 0.22 | 0.17 | No difference |
| Accidental puncture or laceration | 0.14 | 0.13 | Better |

Note: PE (pulmonary embolism), DVT (deep vein thrombosis). “Better” indicates that the risk-adjusted rate decreased by a statistically significant amount from 2010 to 2013 using a $p \leq 0.01$ criterion.

Source: MedPAC analysis of CMS Medicare Provider Analysis and Review data using Agency for Healthcare Research and Quality (AHRQ) Patient Safety Indicators, version 4.1b.

- We analyzed six Patient Safety Indicators (PSIs) developed by AHRQ to measure the frequency of potentially preventable adverse events that can occur during an inpatient stay. Examples of PSIs include the development immediately after surgery of a blood clot that can suddenly obstruct an artery or vein, or a patient’s death after suffering serious but treatable complications following surgery. The rates are calculated using AHRQ software and Medicare inpatient hospital discharge data.
- From 2010 to 2013, rates improved by a statistically significant amount for two of the six PSIs we analyzed: development of postoperative pulmonary embolism or deep-vein thrombosis, and accidental puncture or laceration during a procedure. The other four PSIs did not change (did not improve or worsen) from 2010 to 2013. The rate changes are tested for statistical significance using a stringent criterion ($p \leq 0.01$) to minimize the probability that the observed change in the rates is because of random variation.
- Care should be taken in interpreting all of the reported PSI rates. These measures assess rates of very rare events, which makes it difficult to detect statistically significant changes, even when the measurement sample includes all inpatient prospective payment system hospitals. Further, the statistical reliability of some, if not all, PSIs can be affected by variations over time in hospital diagnostic coding practices. The Commission monitors these PSIs as high-level indicators, but not definitive evidence, of trends in the rates of these types of serious treatment-related harm to patients that can be avoided with adherence to known clinical safety practices.

Chart 5-3. SNFs improved on risk-adjusted rates of community discharge and potentially avoidable rehospitalizations, but there was no change in patient functional status

| Measure | 2011 | 2012 | 2013 |
|---|-------|-------|-------|
| Discharged to the community | 33.2% | 35.6% | 37.5% |
| Potentially avoidable rehospitalizations during SNF stay | 12.4 | 11.5 | 11.1 |
| Potentially avoidable rehospitalizations during 30 days after discharge from SNF | 5.8 | 5.6 | 5.5 |
| Combined rate of rehospitalization during SNF stay or within 30 days after discharge from SNF | 16.5 | 15.5 | 15.1 |
| Rate of improvement in one or more mobility ADLs | 43.6 | 43.6 | 43.7 |
| Rate of no decline in mobility | 87.2 | 87.2 | 87.2 |

Note: SNF (skilled nursing facility), ADL (activity of daily living). High rates of discharge to the community indicate better quality. High rehospitalization rates indicate worse quality. The rate of improvement in mobility ADLs is the average of the rates of improvement in bed mobility, transfer, and ambulation, weighted by the number of stays included in each measure. Stays with improvement in one, two, or three mobility ADLs are counted in the improvement measures. The rate of no decline in mobility is the share of stays with no decline in any of the three ADLs. Rates are the average of facility rates and calculated for all facilities with 25 or more stays, except the rate of potentially avoidable rehospitalization during the 30 days after discharge, which is reported for all facilities with 20 or more stays. Measures exclude hospital-based swing-bed units.

Source: Kramer, A., M. Lin, R. Fish, et al. 2015. *Refinement of community discharge, potentially avoidable readmission, and functional outcome SNF quality measures*. Report prepared by staff from Providigm LLC for the Medicare Payment Advisory Commission. Washington, DC: MedPAC.

- Rates of risk-adjusted community discharge and potentially avoidable rehospitalization among SNF patients improved between 2012 and 2013. A higher percentage of beneficiaries were discharged home, and a lower percentage was readmitted to an acute care hospital for 1 of 13 potentially avoidable conditions. The rates vary slightly from rates reported last year because of minor changes in the methodologies.
- The rehospitalization rates count only stays readmitted to a hospital with the principal diagnosis of a potentially avoidable condition. The 13 potentially avoidable conditions include congestive heart failure, electrolyte imbalance/dehydration, respiratory infection, sepsis, urinary tract or kidney infection, hypoglycemia or diabetic complications, anticoagulant complications, fractures and musculoskeletal injuries, acute delirium, adverse drug reactions, cellulitis/wound infections, pressure ulcers, and abnormal blood pressure.
- The two risk-adjusted measures of change in functional status were essentially unchanged between 2012 and 2013. The mobility measures are composites of the patients' abilities regarding bed mobility, transfer, and ambulation, and they consider the likelihood that a patient will change, given her functional ability at admission. A facility admitting patients with worse prognoses will have a lower expected rate of achieving these outcomes, and this difference will be reflected in the risk-adjusted rates. The rate of improvement in mobility shows the share of stays with improvement in one, two, or three ADLs: bed mobility, transfer, and ambulation. The rate of no decline in mobility is the share of stays with no decline in any of the three ADLs. The rates differ from those reported last year because of changes in the methodologies.

Chart 5-4. Risk-adjusted home health quality measures held steady or improved slightly from 2008 to 2013

| Functional measure | 2008 | 2011 | 2012 | 2013 |
|-----------------------|------|------|------|------|
| Improvements in: | | | | |
| Transferring | 51% | 51% | 52% | 52% |
| Bathing | 62 | 62 | 63 | 63 |
| Walking | N/A | 53 | 55 | 57 |
| Medication management | N/A | 43 | 45 | 46 |
| Pain management | N/A | 65 | 65 | 65 |

Note: N/A (not applicable). The measures for walking, medication management, and pain management changed in 2011, and therefore the 2008 results shown are not comparable with data from later years.

Source: MedPAC analysis of Outcome and Assessment Information Set, home health standard analytic file, and CMS Home Health Compare data.

- Medicare publishes risk-adjusted home health quality measures that track changes in the functional abilities for patients who receive home health care. These measures do not include home health episodes that end with a hospitalization.
- Since 2008, the rates of functional improvement have generally held steady or have slightly improved each year.

Chart 5-5. Dialysis quality of care: Some measures show progress, others need improvement, 2008–2012

| Outcome measure | 2008 | 2010 | 2012 |
|---|------|------|------|
| Percent of in-center hemodialysis patients: | | | |
| Receiving adequate dialysis | N/A | 96% | 97% |
| Anemia measures | | | |
| Mean hemoglobin 10 to < 12 g/dL | 51% | 60 | 71 |
| Mean hemoglobin ≥ 12 g/dL* | 41 | 30 | 7 |
| Mean hemoglobin < 10 g/dL | 8 | 10 | 22 |
| Dialyzed with an AV fistula* | 50 | 56 | 60 |
| Percent of peritoneal dialysis patients: | | | |
| Receiving adequate dialysis | N/A | 88 | 90 |
| Anemia measures | | | |
| Mean hemoglobin 10 to < 12 g/dL | 52 | 60 | 64 |
| Mean hemoglobin ≥ 12 g/dL* | 36 | 27 | 7 |
| Mean hemoglobin < 10 g/dL | 12 | 14 | 29 |
| Percent of all dialysis patients wait-listed for a kidney | 17 | 17 | 17 |
| Renal transplant rate per 100 dialysis-patient years | 4.4 | 4.1 | 3.7 |
| Annual mortality rate per 100 patient years* | 19.7 | 18.5 | 17.1 |
| Total admissions per patient year* | 1.9 | 1.9 | 1.7 |
| Hospital days per patient year | 12.9 | 12.1 | 11.0 |

Note: g/dL (grams per deciliter [of blood]), AV (arteriovenous), N/A (not available). The rate per patient year is calculated by dividing the total number of events by the fraction of the year that patients were followed. Data on dialysis adequacy, use of fistulas, and anemia management represent the share of patients meeting CMS's clinical performance measures. The United States Renal Data System adjusts data by age, gender, race, and primary diagnosis of end-stage renal disease. Because of CMS's claims reporting requirements, 2010 dialysis adequacy reflects data from July 1, 2010, to December 31, 2010.

*Lower values suggest higher quality.

Source: Compiled by MedPAC from Fistula First, the United States Renal Data System, and 2010 and 2012 institutional outpatient files from CMS.

- Quality of dialysis care is mixed. Performance has improved on some measures, but performance on others remains unchanged.
- All hemodialysis patients require vascular access—the site on the patient's body where blood is removed and returned during dialysis. Between 2008 and 2012, use of arteriovenous fistulas, considered the best type of vascular access, increased from 50 percent to 60 percent of hemodialysis patients. Between 2008 and 2012, overall adjusted mortality rates decreased but remained high among dialysis patients.
- Between 2010 and 2012, the proportion of hemodialysis patients receiving adequate dialysis remained high. Between 2008 and 2012, overall rates of hospitalization declined.
- Other measures suggest that improvements in dialysis quality are still needed. We looked at access to kidney transplantation because it is widely believed to be the best treatment option for individuals with end-stage renal disease. Between 2008 and 2012, the proportion of dialysis patients accepted on the kidney transplant waiting list remains low, and the renal transplant rate per 100 dialysis patient years declined.

Chart 5-6. Medicare Advantage quality measures generally show improvement between 2012 and 2014

| Measures | HMO averages (cost plans included) | | | Local PPO averages | | |
|---|---------------------------------------|-------------------|--------------------|--------------------|-------------------|--------------------|
| | 2012 | 2013 | 2014 | 2012 | 2013 | 2014 |
| HEDIS[®] administrative measures | | | | | | |
| Osteoporosis management | 22.5 | 24.8 | 29.2 ^a | 19.3 | 19.4 | 22.7 ^{ab} |
| Rheumatoid arthritis management | 72.6 | 75.4 ^a | 76.1 | 77.7 | 79.3 | 80.6 ^b |
| HEDIS[®] hybrid measures | | | | | | |
| BMI documented | 68.1 | 81.7 ^a | 90.1 ^{ab} | 63.2 | 77.1 ^a | 86.5 ^{ab} |
| Colorectal cancer screening | 60.0 | 63.1 ^a | 65.1 ^{ab} | 55.5 | 59.1 ^a | 61.8 ^{ab} |
| Cholesterol screening for patients with heart disease | 88.9 | 89.5 | 89.8 ^b | 88.4 | 87.7 | 88.0 ^b |
| Controlling blood pressure | 64.0 | 63.9 | 65.8 ^a | 61.3 | 60.0 | 63.9 ^a |
| Cholesterol screening for patients with diabetes | 88.3 | 88.7 | 89.6 ^a | 86.7 | 86.7 | 88.0 ^a |
| Eye exam to check for damage from diabetes | 66.0 | 67.6 | 68.8 | 64.3 | 65.5 | 67.3 |
| Kidney function testing for members with diabetes | 89.8 | 90.5 ^a | 91.4 ^{ab} | 88.1 | 88.5 | 89.6 ^{ab} |
| Diabetics not controlling blood sugar (lower rate better) | 26.5 | 25.4 | 24.3 ^b | 28.4 | 28.6 | 25.1 ^{ab} |
| Measures from HOS^c | | | | | | |
| Advising physical activity | 48.6 | 50.0 ^a | 50.3 ^b | 47.7 | 49.1 ^a | 48.4 ^b |
| Improving bladder control | 34.9 | 34.6 | 34.3 ^b | 35.8 | 35.9 | 36.3 ^b |
| Reducing the risk of falling | 60.5 | 61.8 ^a | 60.8 ^b | 54.3 | 56.6 ^a | 56.5 ^b |
| Other measures based on HOS | | | | | | |
| Improving or maintaining physical health | 65.5 | 66.5 ^a | 68.8 ^a | 65.6 | 67.1 ^a | 68.3 ^a |
| Improving or maintaining mental health | 76.5 | 77.5 ^a | 79.1 ^{ab} | 77.8 | 78.0 | 80.3 ^{ab} |
| Measures from CAHPS[®] | | | | | | |
| Annual flu vaccine | 68.0 | 70.7 ^a | 72.3 ^a | 68.8 | 72.0 ^a | 73.8 |
| Ease of getting needed care and seeing specialists | 84.4 | 84.9 | 83.6 ^{ab} | 85.9 | 86.1 | 85.3 ^{ab} |
| Getting appointments and care quickly | 75.5 | 75.7 | 76.0 ^b | 76.5 | 76.2 | 77.2 ^{ab} |
| Overall rating of health care quality | 85.8 | 85.9 | 86.0 | 86.5 | 86.3 | 86.4 |
| Overall rating of plan | 86.2 | 86.2 | 85.8 | 85.1 | 85.0 | 85.1 |
| Care coordination | N/R | 84.8 | 85.1 | N/R | 85.8 | 85.8 |

Note: HMO (health maintenance organization), PPO (preferred provider organization), HEDIS[®] (Healthcare Effectiveness Data and Information Set, a registered trademark of the National Committee for Quality Assurance), BMI (body mass index), HOS (Health Outcomes Survey), CAHPS[®] (Consumer Assessment of Healthcare Providers and Systems, a registered trademark of the Agency for Healthcare Research and Quality), N/R (not reported). Data exclude regional PPOs, private fee-for-service plans, and employer-directed plans. Cost-reimbursed HMO plans are included. HEDIS administrative measures are calculated using administrative data; hybrid measures can involve sampling medical records to determine a rate. Averages are for all reporting plans in each year; results may therefore differ from those shown in other MedPAC reporting of scores for plans that report measures for both years of a two-year time period.

^a Statistically significant difference in performance from previous year ($p < 0.05$).

^b Statistically significant difference in performance in 2014 between HMO and PPO results ($p < 0.05$).

^c Results shown for HEDIS measures taken from HOS (the three measures listed) include scores for plans not reporting other HEDIS data. Results may therefore differ from those shown in other MedPAC reporting of these scores.

Source: MedPAC analysis of CMS HEDIS public use files for HEDIS measures and star ratings data for measures based on HOS and for CAHPS measures.

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Chart 5-6. Medicare Advantage quality measures generally show improvement between 2012 and 2014 (continued)

- The chart displays the simple averages across all plans in each category (HMOs and local PPOs) for each year.
- The measures listed are included in the measures that CMS uses to develop plan star ratings, which are the basis of quality bonus payments for plans (see Chart 9-12). For star rating purposes, measures have different weights. Process measures, such as each of the HEDIS administrative measures in the table, have a weight of 1.0. Patient experience measures, including the last four items in the table, have a weight of 1.5. Outcome measures have a weight of 3. The table includes two HEDIS outcome measures used in the star ratings: controlling blood pressure (for all patients with hypertension) and poor control of blood glucose among diabetics. In the last year, the former measure showed statistically significant improvement for both HMO and PPO enrollees, and the latter measure showed statistically significant improvement among PPO enrollees. The HOS-based outcome measures, which track changes over a two-year period in plan enrollees' self-reported mental and physical health, improved from 2013 to 2014 for both HMOs and PPOs.
- Among HMOs, 10 of the 21 measures shown in the chart had statistically significant improvement between 2013 and 2014. In addition to the HEDIS- and HOS-based outcome measures, HMOs improved on four screening or testing measures, on influenza vaccination rates, and on osteoporosis management for women with a fracture. HMOs showed a decline in the CAHPS measure of ease of getting needed care and seeing specialists, as was true of PPOs. Among local PPOs, 11 measures showed statistically significant improvement between 2013 and 2014, including the same 4 screening or testing measures with HMO improvement. The HEDIS- and HOS-based outcome measures also showed improvement.
- In 2014, HMOs performed better than local PPOs on eight measures shown in the chart. For five of the eight HEDIS hybrid measures—which are measures that can involve documentation from a review of a sample of medical records—HMOs continue to perform better than local PPOs, though PPOs showed statistically significant improvement on six of the hybrid measures between 2013 and 2014. HMOs also performed better than local PPOs in osteoporosis management in women who have had a fracture; advising enrollees to engage in physical activity; reducing the risk of falling among members with a problem falling, walking, or maintaining balance; and the CAHPS measure of the overall rating of the plan.
- In 2014, local PPOs performed better than HMOs on eight measures, including a measure of rheumatoid arthritis management and a measure of improving bladder control. In patient experience measures, PPOs performed better than HMOs in members' perception of their ease of getting needed care, but HMO plans had higher overall plan ratings.
- HEDIS includes a measure of hospital readmissions that is an element of the CMS star system (readmission within 30 days of a hospital admission, for any cause). For this measure (with a weight of 3 in the star rating system), HMOs and local PPOs had readmission rates below expected rates, and results improved between 2013 and 2014 for both types of plans (not shown in chart).

Chart 5-7. Use and spending for selected services detected by measures of low-value care in fee-for-service Medicare, 2012

| Measure | Broader version of measures | | | Narrower version of measures | | |
|---|-----------------------------|---------------------------------|---------------------|------------------------------|---------------------------------|---------------------|
| | Count per 100 beneficiaries | Share of beneficiaries affected | Spending (millions) | Count per 100 beneficiaries | Share of beneficiaries affected | Spending (millions) |
| Imaging for nonspecific low back pain | 12.0 | 8.9% | \$224 | 3.6 | 3.3% | \$67 |
| PSA screening at age ≥ 75 years | 9.6 | 6.6 | 82 | 5.5 | 4.5 | 47 |
| Colon cancer screening for older adults | 8.7 | 8.2 | 435 | 0.4 | 0.4 | 4 |
| Carotid artery disease screening in asymptomatic patients | 5.5 | 5.0 | 286 | 4.5 | 4.2 | 236 |
| Preoperative chest radiography | 5.1 | 4.6 | 74 | 1.3 | 1.2 | 19 |
| Stress testing for stable coronary disease | 4.8 | 4.6 | 1,334 | 0.5 | 0.5 | 152 |
| PTH testing in early CKD | 4.2 | 2.4 | 77 | 3.7 | 2.1 | 67 |
| Head imaging for headache | 3.8 | 3.4 | 248 | 2.6 | 2.4 | 167 |
| Cervical cancer screening at age > 65 years | 2.9 | 2.9 | 59 | 2.6 | 2.6 | 52 |
| Homocysteine testing in cardiovascular disease | 1.5 | 1.2 | 12 | 0.5 | 0.4 | 4 |
| Head imaging for syncope | 1.3 | 1.2 | 82 | 0.8 | 0.8 | 55 |
| Preoperative echocardiography | 0.8 | 0.8 | 61 | 0.3 | 0.2 | 20 |
| Carotid artery disease screening for syncope | 0.7 | 0.7 | 38 | 0.5 | 0.5 | 26 |
| Preoperative stress testing | 0.7 | 0.7 | 186 | 0.2 | 0.2 | 66 |
| CT for rhinosinusitis | 0.6 | 0.5 | 39 | 0.3 | 0.3 | 18 |
| BMD testing at frequent intervals | 0.5 | 0.5 | 10 | 0.3 | 0.3 | 7 |
| Cancer screening for patients with CKD on dialysis | 0.4 | 0.3 | 7 | 0.1 | 0.1 | 1 |
| PCI/stenting for stable coronary disease | 0.3 | 0.3 | 1,258 | 0.1 | 0.1 | 204 |
| Arthroscopic surgery for knee osteoarthritis | 0.3 | 0.3 | 222 | 0.1 | 0.1 | 116 |
| Vertebroplasty | 0.2 | 0.2 | 361 | 0.2 | 0.2 | 352 |
| Renal artery stenting | 0.2 | 0.2 | 445 | 0.0 | 0.0 | 85 |
| IVC filter placement | 0.2 | 0.2 | 40 | 0.2 | 0.2 | 40 |
| Hypercoagulability testing after DVT | 0.1 | 0.1 | 4 | 0.0 | 0.0 | 1 |
| Preoperative PFT | 0.1 | 0.1 | 1 | 0.1 | 0.1 | 1 |
| Carotid endarterectomy for asymptomatic patients | 0.1 | 0.1 | 176 | 0.0 | 0.0 | 75 |
| EEG for headache | 0.1 | 0.1 | 4 | 0.0 | 0.0 | 2 |
| Total | 64.5 | 36.9 | 5,765 | 28.4 | 20.8 | 1,884 |

Note: PSA (prostate-specific antigen), PTH (parathyroid hormone), CKD (chronic kidney disease), CT (computed tomography), BMD (bone mineral density), PCI (percutaneous coronary intervention), IVC (inferior vena cava), DVT (deep vein thrombosis), PFT (pulmonary function test), EEG (electroencephalography). "Count" refers to the number of unique services. Numbers may not sum to totals due to rounding. The total for share of beneficiaries affected does not equal the column sum because some beneficiaries received multiple low-value services.

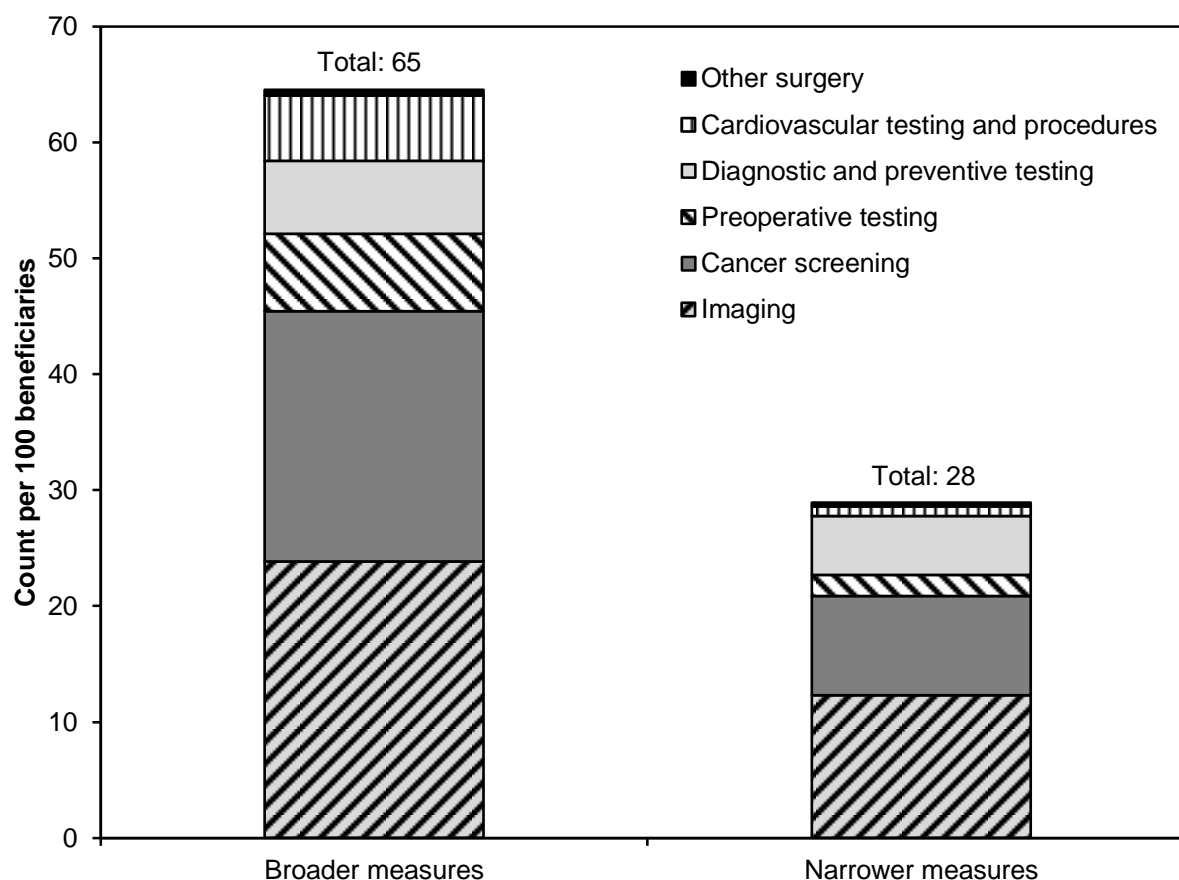
Source: MedPAC analysis of 100 percent Medicare claims using measures developed by Schwartz et al. (2014).

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Chart 5-7. Use and spending for selected services detected by measures of low-value care in fee-for-service Medicare, 2012 (continued)

- Low-value care is the provision of a service that has little or no clinical benefit, or a service for which the risk of harm outweighs its potential benefit.
- The measures of low-value care in this chart were developed by a team of researchers that included two physicians (Schwartz, A. L., B. E. Landon, A. G. Elshaug, M. E. Chernew, and J. M. McWilliams. 2014. Measuring low-value care in Medicare. *JAMA Internal Medicine* 174: 1067–1076). The measures are drawn from evidence-based lists—such as Choosing Wisely—and the medical literature. We applied these measures to 100 percent Medicare claims data from 2012.
- The researchers developed two versions of each measure: a broader one with higher sensitivity (and lower specificity) and a narrower one with higher specificity (and lower sensitivity). Increasing the sensitivity of a measure captures more potentially inappropriate use, but also is more likely to misclassify some appropriate use as inappropriate. Increasing a measure's specificity leads to less misclassification of appropriate use as inappropriate at the expense of potentially missing some inappropriate use.
- Based on the broader versions of each measure, there were about 65 instances of low-value care per 100 beneficiaries across all the measures, and about 37 percent of beneficiaries received at least one low-value service. Based on the narrower versions of each measure, there were about 28 instances of low-value care per 100 beneficiaries, and about 21 percent of beneficiaries received at least one low-value service.

Chart 5-8. Use of services detected by selected measures of low-value care, by category, 2012

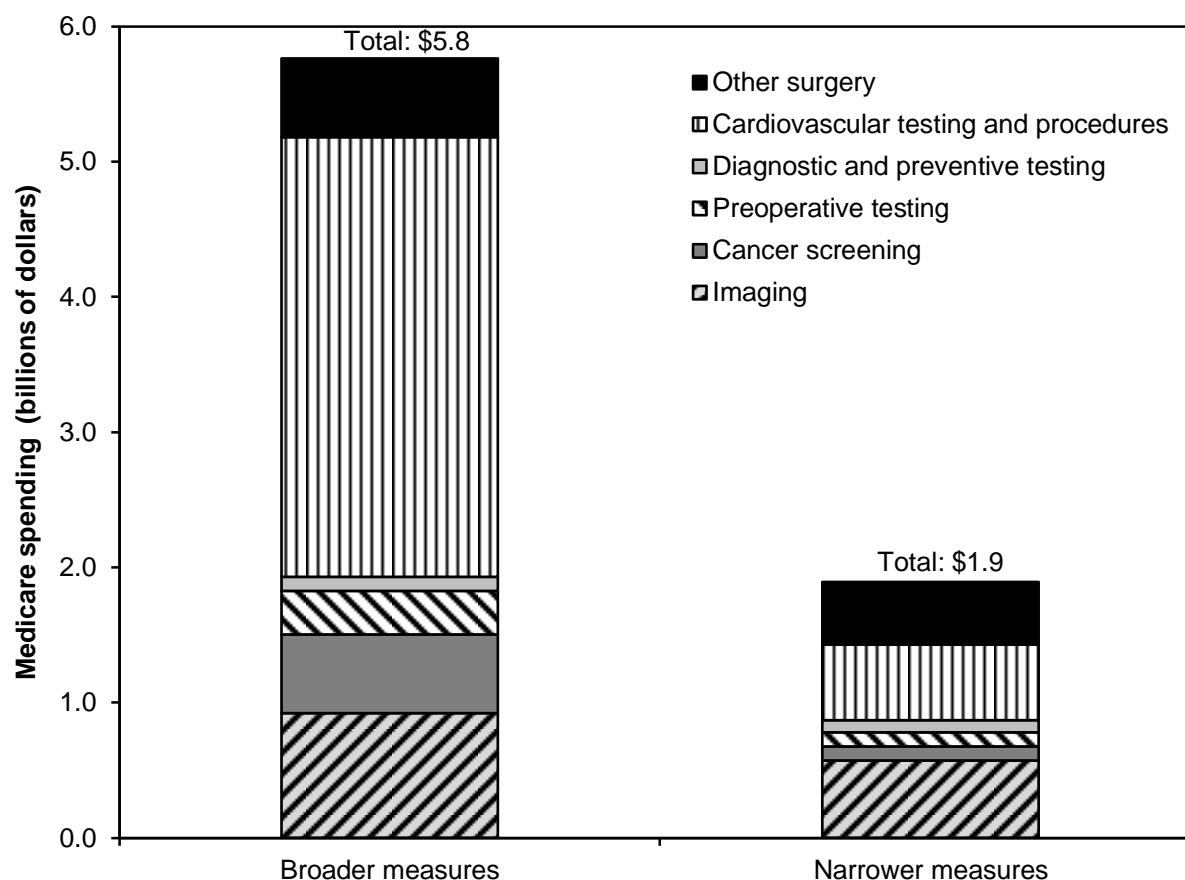


Note: "Count" refers to the number of unique services provided to fee-for-service Medicare beneficiaries.

Source: MedPAC analysis of 100 percent Medicare claims using measures developed by Schwartz et al. (2014).

- Following the methodology described in Schwartz et al. (2014), we assigned each of the 26 measures of low-value care in Chart 5-7 to 1 of 6 clinical categories.
- Imaging and cancer screening measures accounted for most of the volume of low-value care in 2012: about 70 percent of the instances of low-value care per 100 beneficiaries in both the broader and narrower versions of the measures. The imaging category includes back imaging for patients with nonspecific low back pain and screening for carotid artery disease in asymptomatic patients. The cancer screening category includes prostate-specific antigen testing for men age 75 or older and colorectal cancer screening for older patients.
- Because we used claims data to measure low-value care, our analysis likely represents a conservative estimate of the amount of low-value care in Medicare.

Chart 5-9. Spending on services detected by selected measures of low-value care, by category, 2012



Note: Spending includes Medicare Part A and Part B program spending and beneficiary cost sharing for services detected by measures of low-value care. To estimate spending, we used standardized prices to adjust for regional differences in payment rates. The standardized price is the median payment per service in 2009. This method was developed by Schwartz et al. (2014).

Source: MedPAC analysis of 100 percent Medicare claims using measures developed by Schwartz et al. (2014).

- Cardiovascular testing and procedures and imaging accounted for most of the spending on low-value care, comprising 60 percent of total spending on low-value care using the narrower measures and 72 percent of total spending using the broader measures.
- The cardiovascular testing and procedures category includes stress testing for stable coronary disease and percutaneous coronary intervention with balloon angioplasty or stent placement for stable coronary disease. The imaging category includes screening for carotid artery disease in asymptomatic patients and head imaging for uncomplicated headache.
- The spending estimates probably understate actual spending on low-value care because they do not include downstream services (e.g., follow-up tests and procedures) that may result from the initial low-value service.

